

CLAIMS

What is claimed is:

- 5 1. A system for preparing a light sequence, comprising
an authoring interface displaying information representative of a plurality of
lighting effects, and
a sequence authoring module to permit a user to select a lighting effect, a lighting
unit to execute the lighting effect, a start time for the lighting effect, and a stop time for
10 the lighting effect.
2. The system of claim 1, further comprising
a lighting set-up module to receive information representative of an arrangement
of a plurality of lighting units, and
15 a set-up interface to visually display the arrangement of the plurality of lighting
units.
3. The system of claim 2, wherein, upon initiation of a playback function, the set-up
interface displays a selected lighting effect, as defined by a start time and a stop time
20 associated therewith, on a portion thereof defined by a lighting unit associated with the
selected lighting effect.
4. The system of claim 2, wherein each lighting unit is associated with a unique
address.
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5. The system of claim 2, wherein the plurality of lighting units include an LED
lighting unit capable of emitting light of any of a range of different colors.
6. The system of claim 1, wherein the authoring interface includes a grid, wherein a
30 plurality of lighting units are represented along one axis and wherein time is represented
along a second axis.

7. The system of claim 5, wherein the authoring interface visually represents the selected lighting effect on a region of the grid defined by a lighting unit, start time, and stop time associated with the selected lighting effect.
- 5 8. The system of claim 1, further comprising
a recorder to store user selections on an electronic storage medium.
9. The system of claim 1, wherein the sequence authoring module includes a coloring unit to permit a user to select a color for the selected lighting effect.
- 10 10. The system of claim 1, wherein the sequence authoring module includes a coloring unit to permit a user to select a starting color and an ending color for the selected lighting effect.
- 15 11. The system of claim 1, wherein the sequence authoring module includes a transitioning unit to permit a user to select a transition effect for a transition between a first lighting effect and a second lighting effect.
12. The system of claim 1, wherein the sequence authoring module includes a
20 prioritizing unit to permit a user to determine a priority for a first lighting effect which shares a temporal overlap with a second lighting effect.
13. The system of claim 1, wherein the sequence authoring module includes an intensity unit to permit a user to determine a brightness for the selected lighting effect.
- 25 14. The system of claim 1, wherein the sequence authoring module includes a cue unit to permit the user to provide instructions to start the selected lighting effect upon receiving an external stimulus.
- 30 15. The system of claim 1, wherein the sequence authoring module includes a motion unit to permit the user to determine a motion of a lighting unit.

16. The system of claim 1, further comprising a lighting effect creator to permit a user to design lighting effects using the sequence authoring module and to include the user-designed effects on the authoring interface.

5 17. A method for preparing a lighting sequence capable of being executed by a processor, comprising
 providing a processor interface including information representative of a plurality of lighting effects,
 receiving information representative of a lighting unit,
 10 receiving information representative of a first lighting effect to be executed by the lighting unit,
 receiving information representative of a start time for the first lighting effect,
 and
 receiving information representative of a stop time for the first lighting effect.

15 18. The method of claim 17, further comprising
 receiving information representative of an arrangement of a plurality of lighting units, and
 providing a processor interface representative of the arrangement of the plurality
 20 of lighting units.

19. The method of claim 18, further comprising
 visually representing the first lighting effect on the portion of the interface
 representative of an arrangement of a plurality of lighting units as defined by the lighting
 25 unit, the start time, and the stop time.

20. The method of claim 17, further comprising
 repeating the method for a second lighting unit.

30 21. The method of claim 17 wherein providing a processor interface includes providing an interface which displays a grid, wherein a plurality of lighting units are represented along one axis and wherein time is represented along a second axis.

22. The method of claim 20 further comprising
visually representing the first lighting effect on the region of the grid defined by
the lighting unit, the start time, and the stop time.
- 5 23. The method of claim 23, further comprising
storing the received information on an electronic storage medium.
24. The method of claim 17, further comprising
receiving information representative of a color for the first lighting effect.
- 10 25. The method of claim 17, further comprising
receiving information representative of a second lighting effect to be executed by
the lighting unit,
receiving information representative of a start time for the second lighting effect,
15 and
receiving information representative of a stop time for the second lighting effect.
26. The method of claim 25, further comprising
receiving information representative of a transition effect between the first
20 lighting effect and the second lighting effect.
27. The method of claim 25, further comprising
receiving information representative of a priority for the second lighting effect.
- 25 28. The method of claim 17, further comprising
receiving information representative of a brightness for the first lighting effect.
29. The method of claim 17, wherein receiving information representative of a lighting
unit includes receiving information representative of a plurality of lighting units, and
30 receiving information representative of a first lighting effect includes receiving
information representative of a first lighting effect to be executed by the plurality of
lighting units.

30. The method of claim 17, wherein receiving information representative of a lighting unit includes receiving information representative of an LED lighting unit capable of emitting light of any of a range of colors.
- 5 31. The method of claim 17, wherein receiving information representative of a start time includes receiving instructions to start the first lighting effect upon receiving an external stimulus.
32. The method of claim 17, wherein receiving information representative of a lighting unit includes receiving an address of the lighting unit.
- 10 33. The method of claim 17, further comprising
receiving information representative of a first motion of the lighting unit.
- 15 34. A system for controlling a plurality of lighting units, comprising
a data interface for receiving instructions for controlling a plurality of lighting units,
a signal interface for receiving external signals,
a processor for converting said instructions to a data stream and for altering the
20 conversion of said instructions based on the external signals received, and
a data output for transmitting the data stream to a plurality of lighting units.
35. The system of claim 34, wherein said signal interface includes a mechanical interface for receiving an input.
- 25 36. The system of claim 34, wherein said signal interface includes a port for receiving an electromagnetic signal.
37. The system of claim 34, wherein said data output includes a port for transmitting
30 data to a mechanical device.
38. The system of claim 34, wherein said data output includes a port for transmitting data to a device for reproducing an audio signal.

39. The system of claim 34, wherein said data output includes a port for transmitting data to a device for reproducing a video image.
- 5 40. The system of claim 34, wherein said data interface is a data connection for receiving instructions from another processor.
41. The system of claim 40, wherein said data connection comprises an infrared port, a serial port, a parallel port, an RF port, a wireless port or a USB port.
- 10 42. The system of claim 34, wherein said data interface is capable of reading instructions from a storage medium.
43. The system of claim 42, wherein said storage medium is selected from a magnetic
15 disk, magnetic tape, smart card, volatile solid state memory, non-volatile solid state memory and compact disk.
44. The system of claim 34, further comprising
a database to store directions for converting predetermined lighting effects
20 having parameters associated therewith into data suitable for controlling a plurality of lighting units.
45. The system of claim 34, further comprising
a memory module for storing information representative of effects being
25 executed by a plurality of lighting units.
46. The system of claim 34, further comprising
a timing mechanism for measuring intervals of time.
- 30 47. The system of claim 34, further comprising
a first timing mechanism for measuring elapsed time, and
a second timing mechanism for determining the date and time of day.

48. The system of claim 34, wherein the data output includes a color mechanism for setting the color of an LED lighting unit capable of emitting light of any of a range of colors.

- 5 49. A method for controlling a plurality of lighting units, comprising
receiving instructions for controlling a plurality of lighting units,
receiving external signals,
converting said instructions to a data stream based on the external signals
received, and
10 transmitting the data stream to a plurality of lighting units.

50. The method of claim 49, wherein receiving external signals includes receiving input from a mechanical interface

- 15 51. The method of claim 49, wherein receiving external signals includes receiving an electromagnetic signal.

52. The method of claim 49, wherein transmitting the data stream includes transmitting data to a mechanical device.

- 20 53. The method of claim 49, wherein transmitting the data stream includes transmitting data to a device for reproducing an audio signal.

54. The method of claim 49, wherein transmitting the data stream includes transmitting
25 data to a device for reproducing a video image.

55. The method of claim 49, wherein receiving instructions includes receiving instructions from another processor.

- 30 56. The method of claim 55, wherein receiving instructions from another processor includes using an infrared port, a serial port, a parallel port, or a USB port.

58. The method of claim 58, wherein reading instructions from a storage medium includes reading data from a medium selected from a magnetic disk, magnetic tape, smart card, and compact disk.

59. The method of claim 49, wherein receiving instructions includes receiving a plurality of lighting effects having parameters associated therewith.

60. The method of claim 59, further comprising
utilizing directions for converting predetermined lighting effects to convert said
plurality of lighting effects into data suitable for controlling a plurality of lighting units.

61. The method of claim 49, further comprising
storing information representative of effects being executed by a plurality of
lighting units in a transient memory.

62. The method of claim 49, wherein receiving external signals includes receiving data from a timing mechanism.

63. The method of claim 49, wherein receiving external signals includes receiving data from a first timing mechanism for measuring elapsed time, and a second timing mechanism for determining the date and time of day.

64. The method of claim 49, wherein receiving external signals includes receiving data from a sensor.

65. The method of claim 49, wherein receiving external signals includes receiving an alarm signal.

66. The method of claim 49, wherein transmitting the data stream setting the color of an LED lighting unit capable of emitting light of any of a range of colors.

67. The method of claim 49, wherein converting said instructions to a data stream based on the external signals received includes repeating an effect until an external signal is received.

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68. The method of claim 49, wherein converting said instructions to a data stream based on the external signals received includes modifying the rate of a lighting sequence.

69. The method of claim 49, wherein converting said instructions to a data stream based on the external signals received includes switching from a high priority effect to a low priority effect.

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70. The method of claim 49, wherein converting said instructions to a data stream based on the external signals received includes interrupting a lighting sequence to execute a different effect.

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71. A method for controlling a plurality of lighting units, comprising
 receiving instructions including a primary lighting effect and a secondary lighting effect, the secondary lighting effect designated to be executed instead of the primary lighting effect upon a predetermined condition,
 sending instructions to a lighting unit to execute the primary lighting effect,
 receiving a signal indicative of the predetermined condition, and
 sending instructions to the lighting unit to execute the secondary lighting effect.

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72. A method for controlling a plurality of lighting units, comprising
 receiving instructions for executing a timed sequence of lighting effects,
 executing the sequence of lighting effects utilizing a plurality of lighting units,
 receiving an external signal, and
 altering the execution of the sequence of lighting effects.

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73. The method of claim 72, wherein altering the execution of the sequence of lighting effects includes altering the rate of the timed sequence.

74. The method of claim 72, wherein altering the execution of the sequence of lighting effects includes executing a different sequence of lighting effects.

5 75. The method of claim 72, wherein altering the execution of the sequence of lighting effects includes pausing during the sequence.

76. The method of claim 72, wherein altering the execution of the sequence of lighting effects includes changing the brightness of the light emitted by the plurality of lighting units.

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77. The method of claim 72, wherein altering the execution of the sequence of lighting effects includes changing the color of the light emitted by the plurality of lighting units.

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